Format No: CP/TF/01

# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2020-08-18-31** **Date: 16/03/2020**

**Customer** : Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.

**Address** : Shettyhalli Sub Division, BBMP, Bangalore.

**Project Name** : Improvements to Drain and Footpath at KG Hally in Ward No 12 Shettyhalli Sub Division.

**Agency** : M/S Technical Manager (West), Karnataka Rural Infrastructure Development Limited, No.280, 59th Cross, 17th C Maain Road, 3rd Y Block Rajaji Nagara, Bangaluru-560010

**Customer's Reference** : EE/DD/W.O/541/2019-20

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 19-02-20

**Customer ID** : Drain Side Wall Concrete

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 16/03/2020

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side Wall Concrete | M20 | 17/02/2020 | 16/03/2020 | 151.44 X 149.86 X 151.51 | 22695 | 9.059 | 523.2 | 23.1 | 22.9 |
| 2 | Drain Side Wall Concrete | M20 | 17/02/2020 | 16/03/2020 | 150.30 X 150.84 X 150.32 | 22671 | 8.386 | 498.9 | 22.0 | |
| 3 | Drain Side Wall Concrete | M20 | 17/02/2020 | 16/03/2020 | 150.34 X 149.91 X 150.97 | 22537 | 8.508 | 532.7 | 23.6 | |

Note:
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# TEST REPORT OF PRECAST COVER SLAB

**Lab ID** : CP-2020-08-18-31 **Date: 14-02-20**

**Customer** : Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.

**Address** : Shettyhalli Sub Division, BBMP, Bangalore.

**Project Name** : Improvements to Drain and Footpath at KG Hally in Ward No 12 Shettyhalli Sub Division.

**Agency** : M/S Technical Manager (West), Karnataka Rural Infrastructure Development Limited, No.280, 59th Cross, 17th C Maain Road, 3rd Y Block Rajaji Nagara, Bangaluru-560010

**Customer's Reference** : EE/DD/W.O/541/2019-20

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 10-02-20

**Sample Type /Size** : Precast Cover Slab - 100mm

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete

**Date of test** : 10/02/2020

| Sl. No. | Identification Mark | Diameter of the core | Height of the core | Weight of the core | Area | Failure Load | Core Compressive strength | Corrected Cylinder Compressive strength | Equivalent Cube Compressive strength |
|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | (kg) | (Sq.mm) | (KN) | ($N/mm^2$) | ($N/mm^2$) | ($N/mm^2$) |
| 1 | Cover Slab-1 | 75.51 | 100.48 | 1.116 | 4477 | 80.9 | 18.1 | 16.8 | 21.0 |
| 2 | Cover Slab-2 | 75.49 | 100.52 | 1.122 | 4475 | 82.3 | 18.4 | 17.1 | 21.4 |
| 3 | Cover Slab-3 | 75.50 | 100.51 | 1.118 | 4476 | 81.5 | 18.2 | 16.9 | 21.2 |

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# TEST REPORT OF PRECAST COVER SLAB

**Lab ID** : CP-2020-08-18-31 **Date: 14-02-20**

**Customer** : Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.

**Address** : Shettyhalli Sub Division, BBMP, Bangalore.

**Project Name** : Improvements to Drain and Footpath at KG Hally in Ward No 12 Shettyhalli Sub Division.

**Agency** : M/S Technical Manager (West), Karnataka Rural Infrastructure Development Limited, No.280, 59th Cross, 17th C Maain Road, 3rd Y Block Rajaji Nagara, Bangaluru-560010

**Customer's Reference** : EE/DD/W.O/541/2019-20

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 10-02-20

**Sample Type /Size** : Precast Cover Slab - 250mm

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete

**Date of test** : 10/02/2020

| Sl. No. | Identification Mark | Diameter of the core | Height of the core | Weight of the core | Area | Failure Load | Core Compressive strength | Corrected Cylinder Compressive strength | Equivalent Cube Compressive strength |
|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | (kg) | (Sq.mm) | (KN) | ($N/mm^2$) | ($N/mm^2$) | ($N/mm^2$) |
| 1 | Cover Slab-1 | 200.51 | 250.48 | 3.116 | 31570 | 240.9 | 7.6 | 7.1 | 8.9 |
| 2 | Cover Slab-2 | 200.49 | 250.52 | 3.122 | 31564 | 240.3 | 7.6 | 7.1 | 8.9 |
| 3 | Cover Slab-3 | 200.50 | 250.51 | 3.118 | 31567 | 240.5 | 7.6 | 7.1 | 8.9 |

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# TEST REPORT OF CEMENT CONCRETE CUBES

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2020-08-18-31** **Date: 13/02/2020** |
| **Customer** | : | Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore. |
| **Address** | : | Shettyhalli Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements to Drain and Footpath at KG Hally in Ward No 12 Shettyhalli Sub Division. |
| **Agency** | : | M/S Technical Manager (West), Karnataka Rural Infrastructure Development Limited, No.280, 59th Cross, 17th C Maain Road, 3rd Y Block Rajaji Nagara, Bangaluru-560010 |
| **Customer's Reference** | : | EE/DD/W.O/541/2019-20 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 08-02-20 |
| **Customer ID** | : | Drain Bottom Slab Concrete |
| **Sample Type /Size** | : | 150X150X150 mm |
| **Sample grade/Age** | : | M20 / 7 Days Compressive Strength |
| **Reference to BIS codes** | : | IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5 |
| **Date of test** | : | 13/02/2020 |

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Slab Concrete | M20 | 06/02/2020 | 13/02/2020 | 149.10 X 150.22 X 151.45 | 22398 | 8.741 | 419.6 | 18.7 | 18.7 |
| 2 | Drain Bottom Slab Concrete | M20 | 06/02/2020 | 13/02/2020 | 149.45 X 150.19 X 150.56 | 22446 | 8.659 | 420.9 | 18.8 | |
| 3 | Drain Bottom Slab Concrete | M20 | 06/02/2020 | 13/02/2020 | 151.23 X 150.13 X 151.22 | 22704 | 9.046 | 424.1 | 18.7 | |

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## TEST REPORT ON COARSE AGGREGATES

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2020-08-18-31** **Date: 03-02-20** |
| **Customer** | : | Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore. |
| **Address** | : | Shettyhalli Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements to Drain and Footpath at KG Hally in Ward No 12 Shettyhalli Sub Division. |
| **Agency** | : | M/S Technical Manager (West), Karnataka Rural Infrastructure Development Limited, No.280, 59th Cross, 17th C Maain Road, 3rd Y Block Rajaji Nagara, Bangaluru-560010 |
| **Customer Reference** | : | EE/DD/W.O/541/2019-20 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 31-01-20 |
| **Sample Type/ Size** | : | 20mm down size coarse aggregate |
| **Reference to BIS codes** | : | IS: 383:2016 (Specification for Coarse and fine Aggregates )<br>IS: 2386 :1963(Part - 1,3,4) RA2011<br>IS 2386 Part 1: Particle Size and Shape<br>IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption<br>IS 2386 Part 4: Mechanical Properties |
| **Date of test** | : | 31-01-20 |

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:**

**Total weight taken : 5000 grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 40 mm | 0 | 0 | 0 | 100 | 100 |
| 2 | 20 mm | 208 | 208 | 4.2 | 95.8 | 90-100 |
| 3 | 10 mm | 2787 | 2995 | 59.9 | 40.1 | 25-55 |
| 4 | 4.75 mm | 1804 | 4799 | 96.0 | 4.0 | 0-10 |
| 5 | Pan | 201 | 5000 | 100 | 0 | – |



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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2020-08-18-31** **Date: 03-02-20**

### PHYSICAL PROPERTIES

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 9.7 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 12.5 | |
| 3 | Specific Gravity | 2.63 | – |
| 4 | Bulk Density(Loose) (Kg/l) | 1.45 | – |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.51 | – |
| 6 | Water Absorption(%) | 0.23 | – |
| 7 | Aggregate crushing Value(%) | 23.8 | Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface. |
| 8 | Aggregate Impact Value(%) | 22.7 | 30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface. |

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**Quality Manager**

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# TEST REPORT OF FINE AGGREGATE

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2020-08-18-31** **Date: 03-02-20** |
| **Customer** | : | Assistant Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore. |
| **Address** | : | Shettyhalli Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements to Drain and Footpath at KG Hally in Ward No 12 Shettyhalli Sub Division. |
| **Agency** | : | M/S Technical Manager (West), Karnataka Rural Infrastructure Development Limited, No.280, 59th Cross, 17th C Maain Road, 3rd Y Block Rajaji Nagara, Bangaluru-560010 |
| **Customer's Reference** | : | EE/DD/W.O/541/2019-20 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 31-01-20 |
| **Sample Type** | : | Fine Aggregate |
| **Reference to BIS codes** | : | IS 383 : 2016 (Specification for Coarse and fine Aggregates)<br>IS: 2386 :1963(Part - 1, 3) RA2012<br>IS 2386 Part 1: Particle Size and Shape<br>IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption |
| **Date of test** | : | 31-01-20 |
| **Total weight taken** | : | 1000 grams |

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS 383:2016 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Grading Zone I | Grading Zone II | Grading Zone III | Grading Zone IV |
| 1 | 10 mm | 0 | 0 | 0.0 | 100.0 | 100 | 100 | 100 | 100 |
| 2 | 4.75 mm | 27 | 27 | 2.7 | 97.3 | 90-100 | 90-100 | 90-100 | 95-100 |
| 3 | 2.36 mm | 55 | 82 | 8.2 | 91.8 | 60-95 | 75-100 | 85-100 | 95-100 |
| 4 | 1.18 mm | 239 | 321 | 32.1 | 67.9 | 30-70 | 55-90 | 75-100 | 90-100 |
| 5 | 600 micron | 205 | 526 | 52.6 | 47.4 | 15-34 | 35-59 | 60-79 | 80-100 |
| 6 | 300 micron | 203 | 729 | 72.9 | 27.1 | 5-20 | 8-30 | 12-40 | 15-50 |
| 7 | 150 micron | 191 | 920 | 92.0 | 8.0 | 0-10 | 0-10 | 0-10 | 0-15 |
| 8 | Pan | 80 | 1000 | 100.0 | 0.0 | --- | --- | --- | --- |

**Result :The tested Sample Conforms to Grading Zone II**



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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2020-08-18-31** **Date: 03-02-20**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS 383:2016 |
|---|---|---|---|
| 1 | Water Absorption(%) | 1.5 | _ |
| 2 | Specific Gravity | 2.59 | _ |
| 3 | Material finer than 75 micron(%) | 6.9 | Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10% |

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